FACT SHEET FOR NPDES PERMIT NO. WA0037737
CEDAR CREEK CORRECTIONS CENTER

SUMMARY

The Cedar Creek Correctional Facility was last permitted in 1997, with the permit due to expire in June 2000. In 1997, an amended fact sheet was issued for the last fact sheet that was issued with a permit in 1991. In 1996, the facility was upgraded to increase the treatment efficiency and improve the on-going operation and maintenance. The plant is currently classified as providing tertiary treatment.

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INTRODUCTION

The Federal Clean Water Act (FCWA, 1972, and later modifications, 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One of the mechanisms for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System of permits (NPDES permits), which is administered by the Environmental Protection Agency (EPA). The EPA has delegated responsibility to administer the NPDES permit program to the state of Washington on the basis of Chapter 90.48 Revised Code of Washington (RCW) which defines the Department of Ecology's (Department) authority and obligations in administering the wastewater discharge permit program.

The regulations adopted by the state include procedures for issuing permits [Chapter 173-220 Washington Administrative Code (WAC)], technical criteria for discharges from municipal wastewater treatment facilities (Chapter 173-221 WAC), water quality criteria for surface and ground waters (Chapters 173-201A and 200 WAC), and sediment management standards (Chapter 173-204 WAC). These regulations require that a permit be issued before discharge of wastewater to waters of the state is allowed. The regulations also establish the basis for effluent limitations and other requirements which are to be included in the permit. One of the requirements (WAC 173-220-060) for issuing a permit under the NPDES permit program is the preparation of a draft permit and an accompanying fact sheet. Public notice of the availability of the draft permit is required at least 30 days before the permit is issued (WAC 173-220-050). The fact sheet and draft permit are available for review (see Appendix A--Public Involvement of the fact sheet for more detail on the Public Notice procedures).

The fact sheet and draft permit have been reviewed by the Permittee. Errors and omissions identified in this review have been corrected before going to public notice. After the public comment period has closed, the Department will summarize the substantive comments and the response to each comment. The summary and response to comments will become part of the file on the permit and parties submitting comments will receive a copy of the Department's response. The fact sheet will not be revised. Comments and the resultant changes to the permit will be summarized in Appendix D--Response to Comments.

GENERAL INFORMATION	
Applicant:	Washington State Department of Corrections PO Box 41112 Olympia, WA 98504-1112
Facility Name and Address:	Cedar Creek Corrections Center Post Office Box 37 Little Rock, WA 98556
Type of Treatment:	Tertiary Municipal
Discharge Location:	Mill Creek Tributary to Mima Creek and the Chehalis River at River Mile 11.8 in Thurston County. Latitude: 46° 53' 12" N Longitude: 123° 07' 56" W.
Water Body ID Number:	WA-23-1015

BACKGROUND INFORMATION

DESCRIPTION OF THE FACILITY

HISTORY

The Cedar Creek Correctional Facility began operation in 1966. The treatment system originally consisted of a single cell lagoon and was designed to serve an inmate and staff population of 285 people. The original lagoon was upgraded in 1991 to an extended aeration activated sludge tertiary treatment plant with ultraviolet disinfection. The plant still had inadequate airlift Return Activated Sludge (RAS) and Waste Activated Sludge (WAS) pumps that limited operation flexibility. The plant was designed for 350 offenders plus staff at that time.

In 1996-97 the plant was upgraded to serve 400 offenders plus staff. These upgrades included a new submersible RAS/WAS pump and magnetic flow meters controlled via variable frequency drives. The trapezoidal V-notch flume in the headworks was replaced with a 3-inch parshall flume and ultrasonic flow meter. An ultrasonic flow meter was installed in the existing effluent 2-inch parshall flume. In June 2000, a 10-hp aerator replaced the 7 ½-hp aerator, which remains as a backup. In August 2000, a sodium hydroxide feeder system was installed to balance the pH of the aeration basin; this had previously been done by hand with lime.

Phase two will be installed at a later date and includes installation of a new sludge thickening system.

COLLECTION SYSTEM STATUS

Portions of the collection portion of the system dates to 1966. There are some problems with inflow and infiltration (I/I) when there is heavy rainfall.

TREATMENT PROCESSES

The wastewater from the corrections center is treated by means of an extended aeration activated sludge process with filtration, reaeration and UV disinfection prior to discharge to Mill Creek. The layout is shown in Attachment 1 and described as follows:

- Laboratory, personnel, and maintenance building;
- Headworks—Influent grinder (or manually cleaned bar screen) Trapezoidal influent meter;
- Aeration basin—equipped with a 3.0 hp mixer (inlet side) and a 7.5 hp floating aerator (at the outlet side) of the basin;
- Secondary clarifier is provided for solids removal via RAS manhole with air lift pumps;
- Aerobic holding tank for sludge handling and storage prior to disposal by a private hauler;
- Filter (tertiary treatment) – Aqua-Aerobic System – sand media, traveling bridge with backwash and automatic controls;
- Reaeration manhole – provided for dissolved oxygen discharge requirement of at least 8.0 mg/L;
- UV disinfection – 2 parallel channels;
- Effluent manhole – V-notch weir effluent flowmeter and effluent sampling;

The facility serves the correctional institution, and a Department of Natural Resources autoshop, car wash, and lumber mill. However, the discharge of toxic substances to the Publicly Owned Treatment Works (POTW) is likely minimal. The plant is classified as Tertiary Municipal, which requires a Group III certified operator. The plant has a Group III operator responsible for day-to-day operations on staff,

eight-hours per day, Monday through Friday, and on call on the weekends with an assistant on site during the weekends. The main operator has a series of inmates in training at the facility. The current trainee has received his Group 1 operator's certification.

DISCHARGE OUTFALL

Tertiary treated and UV disinfected effluent is discharged from the facility via an 8" diameter pipe into Mill Creek.

RESIDUAL SOLIDS

The treatment facilities remove solids during the treatment of the wastewater at the headworks (grit and screenings), and at the clarifier, in addition to incidental solids (rags, scum, and other debris) removed as part of the routine maintenance of the equipment. Grit, rags, scum and screenings are drained and disposed of as solid waste at the local landfill. Biosolids (sludge) is pumped to an acrobic digester and then hauled by septic truck to BioRecycling in Centralia, Lewis County, under a permit from the Thurston County Health District. The surface screening from the clarifier is drained and disposed of as solid waste at the local landfill.

PERMIT STATUS

The previous permit for this facility was issued on April 11, 1997. The previous permit placed effluent limitations on 5-day Biochemical Oxygen Demand (BOD_5), Total Suspended Solids (TSS), pH, Fecal Coliform bacteria, dissolved oxygen, temperature, and ammonia.

An application for permit renewal was submitted to the Department on October 18, 1999, and accepted by the Department on November 16, 1999.

SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT

The facility received its last compliance inspection (class I, routine) on June 7, 2000. During the history of the previous permit, the Permittee has remained in compliance with all conventional parameters except temperature, based on Discharge Monitoring Reports (DMRs) submitted to the Department and inspections conducted by the Department.

The allowable loading limits to the plant were increased after 1997 for BOD and TSS and remains within 85 percent of the new capacity limits. However, the plant has reached the population capacity of 400 inmates and staff.

An analysis of the available temperature data from the DMRs for July-September 1998, and May-October 1999, shows the effluent caused the in-stream temperatures to exceed the allowable increase from background (upstream). The Water Quality Standards allow incremental temperature increases defined by t=28/(T+7) where "t" represents the maximum permissible increase and "T" represents the background temperature as measured at a point unaffected by the discharge (see WAC 173-201A for the full text). This criterion is included in the 1997 and 2000 permit. During the period mentioned above, the effluent exceeded the temperature standard approximately 41 percent of the time just downstream of the discharge. The facility will need to find a way to meet the temperature criterion. The data used in the analysis of the temperature criterion is shown in the spreadsheets of the appendix.

Because temperature increases have exceeded the incremental increase (t=28/(T+7)) portion of the standards on a regular basis, an interim limit has been set for the duration of the permit cycle. The interim limit allows a 2.9^{o} C increase in the downstream temperature. This value is based on a 95 percentile of

the actual difference in the upstream to downstream temperature data. The 95th percentile for the difference between upstream and effluent temperature is 7.9 ° C. A compliance schedule for bringing temperature into compliance is allowed. The Permittee needs to study the source of the temperature exceedances through an engineering report and propose a method of bringing the temperature back into compliance by 2005 at the end of the permit cycle.

There is very little change from the last permit, other than the compliance schedule for temperature. All other limits are essentially the same with one exception. Because there is no reasonable potential to violate the ammonia limits found in the previous permit, the ammonia limit is removed. Ammonia will still need to be monitored.

WASTEWATER CHARACTERIZATION

The concentration of pollutants in the discharge was reported in the NPDES application and in discharge monitoring reports. The effluent is characterized as follows:

Table 1: Wastewater Characterization

Parameter	Influent Concentration	Effluent Concentration
Effluent Flow	0.419 mgd (annual average)	
pH		7.17-7.55
Fecal Coliform		2.25 col/100ml (max. day)
BOD-5 *	123.7 mg/l	6.9 mg/l
TSS *	116.3 mg/l	12 mg/l
Dissolved Oxygen **		8.8 mg/l
Ammonia *		0.317 mg/l

* Highest monthly average. ** Lowest monthly average.

SEPA COMPLIANCE

There has been no upgrades or construction since the previous permit requiring SEPA.

PROPOSED PERMIT LIMITATIONS

Federal and state regulations require that effluent limitations set forth in a NPDES permit must be either technology- or water quality-based. Technology-based limitations for municipal discharges are set by regulation (40 CFR 133, and Chapters 173-220 and 173-221 WAC). Water quality-based limitations are based upon compliance with the Surface Water Quality Standards (Chapter 173-201A WAC), Ground Water Standards (Chapter 173-200 WAC), Sediment Quality Standards (Chapter 173-204 WAC) or the National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992.) The most stringent of these types of limits must be chosen for each of the parameters of concern. Each of these types of limits is described in more detail below.

The limits in this permit are based in part on information received in the application. The effluent constituents in the application were evaluated on a technology- and water quality-basis. The limits necessary to meet the rules and regulations of the state of Washington were determined and included in this permit. The Department does not develop effluent limits for all pollutants that may be reported on the application as present in the effluent**.** Some pollutants are not treatable at the concentrations reported, are not controllable at the source, are not listed in regulation, and do not have a reasonable potential to cause a water quality violation**.** Effluent limits are not always developed for pollutants that may be in the discharge but not reported as present in the application. In those circumstances, the permit does not

authorize discharge of the non-reported pollutants. Effluent discharge conditions may change from the conditions reported in the permit application. If significant changes occur in any constituent, as described in 40 CFR 122.42(a), the Permittee is required to notify the Department of Ecology. The Permittee may be in violation of the permit until the permit is modified to reflect additional discharge of pollutants.

DESIGN CRITERIA

In accordance with WAC 173-220-150 (1)(g), flows or waste loadings shall not exceed approved design criteria.

Table 2: Design Standards for Cedar Creek WWTP.

Parameter	Design Quantity
Monthly average flow (max. month)	0.067 MGD
Monthly average dry weather flow	0.037 MGD
Monthly average wet weather flow	0.055 MGD
BOD_5 influent loading	150 lb./day
TSS influent loading	150 lb./day
Design population equivalent	400

TECHNOLOGY-BASED EFFLUENT LIMITATIONS

Municipal wastewater treatment plants are a category of discharger for which technology-based effluent limits have been promulgated by federal and state regulations. These effluent limitations are given in the Code of Federal Regulations (CFR) 40 CFR Part 133 (federal) and in Chapter 173-221 WAC (state). These regulations are performance standards that constitute all known available and reasonable methods of prevention, control, and treatment for municipal wastewater.

However, WAC 173-220-130(a) requires that "effluent limitations shall not be less stringent than those based upon the treatment facility design efficiency contained in approved engineering plans and report."

$\underline{BOD_5}$ The design calculations in the approved engineering report indicate the BOD_5 in the effluent will be 20 mg/l. Because the discharge is to a small stream, and summer flows probably average 1.0 cfs, the permit will limit the 30-day average discharge of BOD5 at 20 mg/L. The other BOD_5 requirements remain the same as stated in 40 CFR 133.102(a) and WAC 173-221-040(1).

TSS Both 40 CFR 133.102(b) and WAC 173-221-040(1) describe the minimum level effluent quality required for TSS. The WWTP effluent shall comply with the following TSS limitations: The 30-day average shall not exceed 30 mg/L. The 7-day average shall not exceed 45 mg/L. The 30-day average percent removal shall not be less than 85 percent.

These limits for BOD and TSS have been in place since the 1991 permit.

SURFACE WATER QUALITY-BASED EFFLUENT LIMITATIONS

In order to protect existing water quality and preserve the designated beneficial uses of Washington's surface waters, WAC 173-201A-060 states that waste discharge permits shall be conditioned such that the discharge will meet established Surface Water Quality Standards. The Washington State Surface Water Quality Standards (Chapter 173-201A WAC) is a state regulation designed to protect the beneficial uses of the surface waters of the state. Water quality-based effluent limitations may be based on an individual waste load allocation (WLA) or on a WLA developed during a basin-wide total maximum daily loading study (TMDL).

The Chehalis River, which is the end point for Mima Creek and Mill Creek, is 303(d) listed for fecal coliform, nutrients and dissolved oxygen. A TMDL has been completed for the Upper Chehalis River basin and was based on dissolved oxygen and nutrient loads.

NUMERICAL CRITERIA FOR THE PROTECTION OF AQUATIC LIFE

"Numerical" water quality criteria are numerical values set forth in the state of Washington's Water Quality Standards for Surface Waters (Chapter 173-201A WAC). They specify the levels of pollutants allowed in a receiving water while remaining protective of aquatic life. Numerical criteria set forth in the Water Quality Standards are used along with chemical and physical data for the wastewater and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limitations, they must be used in a permit.

NUMERICAL CRITERIA FOR THE PROTECTION OF HUMAN HEALTH

The state was issued 91 numeric water quality criteria for the protection of human health by the U.S. EPA (EPA 1992). These criteria are designed to protect humans from cancer and other disease and are primarily applicable to fish and shellfish consumption and drinking water from surface waters.

NARRATIVE CRITERIA

In addition to numerical criteria, "narrative" water quality criteria (WAC 173-201A-030) limit toxic, radioactive, or deleterious material concentrations below those which have the potential to adversely affect characteristic water uses, cause acute or chronic toxicity to biota, impair aesthetic values, or adversely affect human health. Narrative criteria protect the specific beneficial uses of all fresh (WAC 173-201A-130) and marine (WAC 173-201A-140) waters in the state of Washington.

ANTIDEGRADATION

The state of Washington's Antidegradation Policy requires that discharges into a receiving water shall not further degrade the existing water quality of the water body. In cases where the natural conditions of a receiving water are of lower quality than the criteria assigned, the natural conditions shall constitute the water quality criteria. Similarly, when the natural conditions of a receiving water are of higher quality than the criteria assigned, the natural conditions shall constitute the water quality criteria. More information on the State Antidegradation Policy can be obtained by referring to WAC 173-201A-070.

The Department has reviewed existing records and is unable to determine if ambient water quality is either higher or lower than the designated classification criteria given in Chapter 173-201A WAC; therefore, the Department will use the designated classification criteria for this water body in the proposed permit. The discharges authorized by this proposed permit should not cause a loss of beneficial uses.

CRITICAL CONDITIONS

Surface water quality-based limits are derived for the waterbody's critical condition, which represents the receiving water and waste discharge condition with the highest potential for adverse impact on the aquatic biota, human health, and existing or characteristic water body uses. These conditions can be found in the ammonia analysis and in the appendix technical spreadsheets.

DESCRIPTION OF THE RECEIVING WATER

The facility discharges to Mill Creek, which is designated as a Class A receiving water in the vicinity of the outfall. There are no other nearby point source outfalls. Because the facility is located in an

uninhabited area of the Capitol Forest, the only non-point sources of pollutants may come from silviculture/logging practices. There is a Department of Natural Resources logging equipment facility located next to the corrections center, but does not appear to have any discharges to the Creek. Characteristic uses for class A waters include the following:

> water supply (domestic, industrial, agricultural); stock watering; fish migration; fish rearing, spawning and harvesting; wildlife habitat; primary contact recreation; sport fishing; boating and aesthetic enjoyment; commerce and navigation.

Water quality of this class shall meet or exceed the requirements for all or substantially all uses.

SURFACE WATER QUALITY CRITERIA

Applicable criteria are defined in Chapter 173-201A WAC for aquatic biota. In addition, U.S. EPA has promulgated human health criteria for toxic pollutants (EPA 1992). Criteria for this discharge are summarized below:

Fecal Coliforms	100 organisms/100 mL maximum geometric mean
Dissolved Oxygen	8 mg/L minimum
Temperature*	If ambient temperature is >18 ^{o} C, no increases > 0.3 ^{o} C are allowed; or if ambient temperature is <18 ^{o} C, no increases which exceed (t=28/T+7) are allowed; (An interim limit of no more than 2.9 ^{o} C increase from upstream to downstream will be allowed)
pH	6.5 to 8.5 standard units
Turbidity	Less than 5 NTUs above background
Toxics	No toxics in toxic amounts (see Appendix C for numeric criteria for toxics of concern for this discharge)

* Under normal circumstances the temperature increases would not be allowed to exceed t = 28/(T + 7). "t" represents the maximum permissible temperature increase, and "T" represents background temperature as measured at a point or points unaffected by the discharge and representative of the highest ambient water temperature in the vicinity of the discharge. The maximum water temperature shall not exceed 18.3^{O} C and incremental temperature increase resulting from nonpoint source activities shall not exceed 2.8^{O} C. However, An interim temperature limit has been set. Because temperature increases have exceeded the incremental increase (t=28/(T+7)) portion of the standards on a regular basis an interim limit has been set for the duration of this permit cycle. A compliance schedule has been established in the permit to bring the temperature back into compliance. The interim limit allows a 2.9 ^{O} C increase from upstream to just downstream of the discharge.

CONSIDERATION OF SURFACE WATER QUALITY-BASED LIMITS FOR NUMERIC CRITERIA

Since this permit will not allow a dilution zone and because the receiving stream does not provide sufficient dilution, the proposed water quality standards will not require a change in the limitations of previous permit.

BOD_5--Under critical conditions there is no predicted violation of the Water Quality Standards for Surface Waters. Therefore, the technology-based effluent limitation for BOD_5 was placed in the permit.

The impact of BOD on the receiving water was modeled using Streeter-Phelps analysis of critical dissolved oxygen, at critical condition and with the technology-based effluent limitation for BOD_5 described under "Technology-Based Effluent Limitations" above. The calculations used to determine dissolved oxygen impacts are shown in Appendix C.

Temperature and pH--The impact of pH and temperature were modeled using the calculations from EPA, 1988. The input variables were for dilution factor of 4.2, upstream temperature 12.4°C, upstream pH 7.90, upstream alkalinity 50-150 (as mg $CaCO_3$/L), effluent temperature 18.0°C, and effluent pH of 7.17-7.55.

Under critical conditions there was no predicted violation of the Water Quality Standards for Surface Waters. Therefore, the technology-based effluent limitations for pH was placed in the permit and temperature was not further limited. However, as noted above, the facility has problems meeting temperature standards without a mixing zone.

Fecal coliform-- Under critical conditions there was no prediction of a violation of the fecal coliform criterion for the receiving water with the technology-based limit. An effluent limit of 100 organisms/100 ml would be protective of the fecal coliform criterion and therefore was imposed instead of the technology-based limitation.

Toxic Pollutants--Federal regulations (40 CFR 122.44) require NPDES permits to contain effluent limits for toxic chemicals in an effluent whenever there is a reasonable potential for those chemicals to exceed the surface water quality criteria. This process occurs concurrently with the derivation of technology-based effluent limits. Facilities with technology-based effluent limits defined in regulation are not exempted from meeting the Water Quality Standards for Surface Waters or from having surface water quality-based effluent limits.

Ammonia toxicity was evaluated in a reasonable potential analysis (See Appendix C) to determine whether or not effluent limitations would be required in this permit.

The analysis shows that there was no reasonable potential to violate water quality standards. The DMRs have also not shown any violations of the ammonia limit. However, Ecology has decided to retain the ammonia limit that was in the last permit based on public comments and the need to monitor loading increased over time. The ammonia limit is a good indicator of plant performance.

The determination of the reasonable potential for other toxic chemicals to exceed the water quality criteria was not evaluated, because the facility has little likelihood of producing other toxic chemicals.

HUMAN HEALTH

Washington's water quality standards now include 91 numeric health-based criteria that must be considered in NPDES permits. These criteria were promulgated for the state by the U.S. EPA in its National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992).

The Department has determined that the applicant's discharge is unlikely to contain chemicals regulated for human health, and does not contain chemicals of concern based on existing knowledge. The discharge will be re-evaluated for impacts to human health at the next permit reissuance.

GROUND WATER QUALITY LIMITATIONS

The Department has promulgated Ground Water Quality Standards (Chapter 173-200 WAC) to protect uses of ground water. Permits issued by the Department shall be conditioned in such a manner so as not to allow violations of those standards (WAC 173-200-100).

This Permittee has no discharge to ground and therefore no limitations are required based on potential effects to ground water.

MONITORING REQUIREMENTS

Monitoring, recording, and reporting are required (WAC 173-220-210 and 40 CFR 122.41) to verify that the treatment process is functioning correctly and the effluent limitations are being achieved.

Monitoring for BOD5, TSS, pH, fecal coliform, dissolved oxygen, ammonia, and sludge (includes a priority pollutant scan) is being required to further characterize the effluent. These pollutant(s) could have a significant impact on the quality of the surface water.

Monitoring of sludge quantity and quality is necessary to determine the appropriate uses of the sludge. Sludge monitoring is required by the current state and local solid waste management program and also by EPA under 40 CFR 503.

The monitoring schedule is detailed in the proposed permit under Condition S.2. Specified monitoring frequencies take into account the quantity and variability of discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring. The required monitoring frequency is consistent with agency guidance given in the current version of Ecology's *Permit Writer's Manual* (July 1994) for an activated sludge plant with tertiary treatment below 1.0 mgd flow.

LAB ACCREDITATION

With the exception of certain parameters the permit requires all monitoring data to be prepared by a laboratory registered or accredited under the provisions of Chapter 173-50 WAC, *Accreditation of Environmental Laboratories.* The laboratory at this facility is accredited for ammonia, BOD, dissolved oxygen, pH, TSS, and fecal coliform.

OTHER PERMIT CONDITIONS

REPORTING AND RECORDKEEPING

The conditions of S3. are based on the authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 173-220-210).

PREVENTION OF FACILITY OVERLOADING

Overloading of the treatment plant is a violation of the terms and conditions of the permit. To prevent this from occurring, RCW 90.48.110 and WAC 173-220-150 require the Permittee to take the actions detailed in proposed permit requirement S.4. to plan expansions or modifications before existing capacity is reached and to report and correct conditions that could result in new or increased discharges of pollutants. Condition S.4. restricts the amount of flow. The DMRs show that the plant has been at 395 to 400 inmates for the last several months. The stated capacity of the plant is 400 people. Therefore, the Permittee will need to provide Ecology with a plan for maintaining capacity by upgrading the plant or reducing the population as stated in the permit.

OPERATION AND MAINTENANCE (O&M)

The proposed permit contains condition S.5. as authorized under RCW 90.48.110, WAC 173-220-150, Chapter 173-230 WAC, and WAC 173-240-080. It is included to ensure proper operation and regular

maintenance of equipment, and to ensure that adequate safeguards are taken so that constructed facilities are used to their optimum potential in terms of pollutant capture and treatment.

The proposed permit requires submission of an updated O&M manual for the entire sewage system

RESIDUAL SOLIDS HANDLING

To prevent water quality problems the Permittee is required in permit condition S6. to store and handle all residual solids (grit, screenings, scum, sludge, and other solid waste) in accordance with the requirements of RCW 90.48.080 and State Water Quality Standards.

The final use and disposal of sewage sludge from this facility is regulated by U.S. EPA under 40 CFR 503. The disposal of other solid waste is under the jurisdiction of the Thurston County Health Department.

Requirements for monitoring sewage sludge and recordkeeping are included in this permit. This information will by used by Ecology to develop or update local limits and is also required under 40 CFR 503.

PRETREATMENT

FEDERAL AND STATE PRETREATMENT PROGRAM REQUIREMENTS

Under the terms of the addendum to the "Memorandum of Understanding between Washington Department of Ecology and the United States Environmental Protection Agency, Region 10" (1986), the Department has been delegated authority to administer the Pretreatment Program (i.e. act as the Approval Authority for oversight of delegated POTWs)**.** Under this delegation of authority, the Department has exercised the option of issuing wastewater discharge permits for significant industrial users discharging to POTWs which have not been delegated authority to issue wastewater discharge permits.

DUTY TO ENFORCE DISCHARGE PROHIBITIONS

This provision prohibits the POTW from authorizing or permitting an industrial discharger to discharge certain types of waste into the sanitary sewer. The first portion of the provision prohibits acceptance of pollutants which cause pass through or interference. The definitions of pass through and interference are in Appendix B of the fact sheet.

The second portion of this provision prohibits the POTW from accepting certain specific types of wastes, namely those which are explosive, flammable, excessively acidic, basic, otherwise corrosive, or obstructive to the system. In addition wastes with excessive BOD, petroleum-based oils, or which result in toxic gases are prohibited to be discharged. The regulatory basis for these prohibitions is 40 CFR Part 403, with the exception of the pH provisions which are based on WAC 173-216-060.

The third portion of this provision prohibits certain types of discharges unless the POTW receives prior authorization from the Department. The discharges include cooling water in significant volumes, stormwater and other direct inflow sources, and wastewaters significantly affecting system hydraulic loading, which do not require treatment.

The Corrections Center POTW receives wastewater from a Department of Natural Resources (DNR) auto shop, car wash, and lumber mill. The pretreatment portion of the permit applies to these types of industrial facilities. The Permittee will need to determine if the DNR facilities constitute as "significant industrial users." Even if they are not significant, they will still need to assure that no waste water from these facilities causes an upset to the treatment works as outlined in the permit.

GENERAL CONDITIONS

General Conditions are based directly on state and federal law and regulations and have been standardized for all individual municipal NPDES permits issued by the Department.

PERMIT ISSUANCE PROCEDURES

PERMIT MODIFICATIONS

The Department may modify this permit to impose numerical limitations, if necessary to meet Water Quality Standards, Sediment Quality Standards, or Ground Water Standards, based on new information obtained from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

The Department may also modify this permit as a result of new or amended state or federal regulations.

RECOMMENDATION FOR PERMIT ISSUANCE

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to protect human health, aquatic life, and the beneficial uses of waters of the state of Washington. The Department proposes that this permit be issued for five years.

REFERENCES FOR TEXT AND APPENDICES

Environmental Protection Agency (EPA)

1992. National Toxics Rule. Federal Register, V. 57, No. 246, Tuesday, December 22, 1992.

1991. Technical Support Document for Water Quality-based Toxics Control. EPA/505/2-90-001.

1988. Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling. USEPA Office of Water, Washington, D.C.

1985. Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Ground Water. EPA/600/6-85/002a.

1983. Water Quality Standards Handbook. USEPA Office of Water, Washington, D.C.

Metcalf and Eddy.

1991. Wastewater Engineering, Treatment, Disposal, and Reuse. Third Edition.

Tsivoglou, E.C., and J.R. Wallace.

1972. Characterization of Stream Reaeration Capacity. EPA-R3-72-012. (Cited in EPA 1985 op.cit.)

Washington State Department of Ecology.

1994. Permit Writer's Manual. Publication Number 92-109

Water Pollution Control Federation.

1976. Chlorination of Wastewater.

Wright, R.M., and A.J. McDonnell.

1979. In-stream Deoxygenation Rate Prediction. Journal Environmental Engineering Division, ASCE. 105(EE2). (Cited in EPA 1985 op.cit.)

APPENDIX A--PUBLIC INVOLVEMENT INFORMATION

The Department has tentatively determined to reissue a permit to the applicant listed on page 1 of this fact sheet. The permit contains conditions and effluent limitations which are described in the rest of this fact sheet.

Public notice of application was published on November 18, 1999 in The Olympian to inform the public that an application had been submitted and to invite comment on the reissuance of this permit.

The Department will publish a Public Notice of Draft (PNOD) on date, in Olympian to inform the public that a draft permit and fact sheet are available for review. Interested persons are invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Written comments should be mailed to:

Water Quality Permit Coordinator
Department of Ecology
Southwest Regional Office
PO Box 47775
Olympia, WA 98504-7775.

Any interested party may comment on the draft permit or request a public hearing on this draft permit within the 30 day comment period to the address above. The request for a hearing shall indicate the interest of the party and the reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft permit (WAC 173-220-090). Public notice regarding any hearing will be circulated at least 30 days in advance of the hearing. People expressing an interest in this permit will be mailed an individual notice of hearing (WAC 173-220-100).

Comments should reference specific text followed by proposed modification or concern when possible. Comments may address technical issues, accuracy and completeness of information, the scope of the facility's proposed coverage, adequacy of environmental protection, permit conditions, or any other concern that would result from issuance of this permit.

The Department will consider all comments received within 30 days from the date of public notice of draft indicated above, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from the Department by telephone, 360/407-6554, or by writing to the address listed above.

This permit and fact sheet were written by Eric Schlorff.

APPENDIX B--GLOSSARY

Acute Toxicity--The lethal effect of a pollutant on an organism that occurs within a short period of time, usually 48 to 96 hours.

AKART-- An acronym for "all known, available, and reasonable methods of prevention, control, and treatment".

Ambient Water Quality--The existing environmental condition of the water in a receiving water body.

Ammonia--Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

Average Monthly Discharge Limitation --The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month (except in the case of fecal coliform). The daily discharge is calculated as the average measurement of the pollutant over the day.

Average Weekly Discharge Limitation -- The highest allowable average of daily discharges over a calendar week, calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week. The daily discharge is calculated as the average measurement of the pollutant over the day.

Best Management Practices (BMPs)--Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the state. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

BOD_5--Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD_5 is used in modeling to measure the reduction of dissolved oxygen in a receiving water after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Bypass--The intentional diversion of waste streams from any portion of a treatment facility.

Chlorine--Chlorine is used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

Chronic Toxicity--The effect of a pollutant on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

Clean Water Act (CWA)--The Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

Combined Sewer Overflow (CSO)--The event during which excess combined sewage flow caused by inflow is discharged from a combined sewer, rather than conveyed to the sewage treatment plant because either the capacity of the treatment plant or the combined sewer is exceeded.

Compliance Inspection - Without Sampling--A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

Compliance Inspection - With Sampling--A site visit to accomplish the purpose of a Compliance Inspection - Without Sampling and as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the percent removal requirement. Additional sampling may be conducted.

Composite Sample--A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing a minimum of four discrete samples. May be "time-composite"(collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots.

Construction Activity--Clearing, grading, excavation and any other activity which disturbs the surface of the land. Such activities may include road building, construction of residential houses, office buildings, or industrial buildings, and demolition activity.

Continuous Monitoring –Uninterrupted, unless otherwise noted in the permit.

Critical Condition--The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.

Dilution Factor--A measure of the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. Expressed as the inverse of the effluent fraction e.g., a dilution factor of 10 means the effluent comprises 10% by volume and the receiving water 90%.

Engineering Report--A document which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

Fecal Coliform Bacteria--Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

Grab Sample--A single sample or measurement taken at a specific time or over as short period of time as is feasible.

Industrial User-- A discharger of wastewater to the sanitary sewer which is not sanitary wastewater or is not equivalent to sanitary wastewater in character.

Industrial Wastewater--Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

Infiltration and Inflow (I/I)--"Infiltration" means the addition of ground water into a sewer through joints, the sewer pipe material, cracks, and other defects. "Inflow" means the addition of precipitation-caused drainage from roof drains, yard drains, basement drains, street catch basins, etc., into a sewer.

Interference -- A discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal and;

Therefore is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent state or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including state regulations contained in any state sludge management plan prepared pursuant to subtitle D of the SWDA), sludge regulations appearing in 40 CFR Part 507, the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

Major Facility--A facility discharging to surface water with an EPA rating score of > 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Maximum Daily Discharge Limitation--The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

Method Detection Level (MDL)--The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is above zero and is determined from analysis of a sample in a given matrix containing the analyte.

Minor Facility--A facility discharging to surface water with an EPA rating score of < 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Mixing Zone--A volume that surrounds an effluent discharge within which water quality criteria may be exceeded. The area of the authorized mixing zone is specified in a facility's permit and follows procedures outlined in state regulations (Chapter 173-201A WAC).

National Pollutant Discharge Elimination System (NPDES)--The NPDES (Section 402 of the Clean Water Act) is the Federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the state of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/State permits issued under both state and federal laws.

Pass through -- A discharge which exits the POTW into waters of the state in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation), or which is a cause of a violation of state water quality standards.

pH--The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

Potential Significant Industrial User--A potential significant industrial user is defined as an Industrial User which does not meet the criteria for a Significant Industrial User, but which discharges wastewater meeting one or more of the following criteria:

a. Exceeds 0.5 % of treatment plant design capacity criteria and discharges <25,000 gallons per day or;

b. Is a member of a group of similar industrial users which, taken together, have the potential to cause pass through or interference at the POTW (e.g. facilities which develop photographic film or paper, and car washes).

The Department may determine that a discharger initially classified as a potential significant industrial user should be managed as a significant industrial user.

Quantitation Level (QL)-- A calculated value five times the MDL (method detection level).

Significant Industrial User (SIU)--

1) All industrial users subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR Chapter I, Subchapter N and;

2) Any other industrial user that: discharges an average of 25,000 gallons per day or more of process wastewater to the POTW (excluding sanitary, noncontact cooling, and boiler blow-down wastewater); contributes a process wastestream that makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or is designated as such by the Control Authority* on the basis that the industrial user has a reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement (in accordance with 40 CFR 403.8(f)(6)).

   Upon finding that the industrial user meeting the criteria in paragraph 2, above, has no reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement, the Control Authority* may at any time, on its own initiative or in response to a petition received from an industrial user or POTW, and in accordance with 40 CFR 403.8(f)(6), determine that such industrial user is not a significant industrial user.

   *The term "Control Authority" refers to the Washington State Department of Ecology in the case of non-delegated POTWs or to the POTW in the case of delegated POTWs.

State Waters--Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, wetlands, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

Stormwater--That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

Technology-based Effluent Limit--A permit limit that is based on the ability of a treatment method to reduce the pollutant.

Total Suspended Solids (TSS)--Total suspended solids are the particulate materials in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

Upset--An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

Water Quality-based Effluent Limit--A limit on the concentration or mass of an effluent parameter that is intended to prevent the concentration of that parameter from exceeding its water quality criterion after it is discharged into a receiving water.

APPENDIX C--TECHNICAL CALCULATIONS

CALCULATION OF TEMPERATURE MEETING STANDARDS WITHOUT A MIXING ZONE

Month-Year	Upstream	Downstream	Allowable (28/(b#+7)) Increase	Allowable (b#+e#) Temp Inc.	Meets Std if(f#<d#,1) If False	sum # > Std	(37/81)* 100 % > Std
Oct-99	7.6	8.7	1.9	9.5	FALSE	39	41.49
	7.7	9.6	1.9	9.6	FALSE		
	9.7	11.1	1.7	11.4	FALSE		
	11.6	11.9	1.5	13.1	FALSE		
	8.8	9.8	1.8	10.6	FALSE		
	10.1	11.8	1.6	11.7	OVER STD		
	7.0	9.2	2.0	9.0	OVER STD		
	7.6	9.1	1.9	9.5	FALSE		
	7.5	9.2	1.9	9.4	FALSE		
	7.7	8.7	1.9	9.6	FALSE		
	8.5	10.1	1.8	10.3	FALSE		
	7.6	9.3	1.9	9.5	FALSE		
	9.6	10.1	1.7	11.3	FALSE		
Sep-99	9.7	11.4	1.7	11.4	OVER STD		
	10.1	12.3	1.6	11.7	OVER STD		
	9.1	11.2	1.7	10.8	OVER STD		
	9.9	12.8	1.7	11.6	OVER STD		
	9.3	12.0	1.7	11.0	OVER STD		
	9.9	11.5	1.7	11.6	FALSE		
	10.7	12.4	1.6	12.3	OVER STD		
	9.4	12.2	1.7	11.1	OVER STD		
	10.6	13.2	1.6	12.2	OVER STD		
	10.1	13.0	1.6	11.7	OVER STD		
	10.0	12.1	1.6	11.6	OVER STD		
	8.2	9.8	1.8	10.0	FALSE		
	8.3	10.1	1.8	10.1	FALSE		
Aug-99	10.4	12.3	1.6	12.0	OVER STD		
	11.3	13.2	1.5	12.8	OVER STD		
	11.6	12.9	1.5	13.1	FALSE		
	11.3	12.4	1.5	12.8	FALSE		
	11.9	14.2	1.5	13.4	over std		
	11.5	12.7	1.5	13.0	FALSE		
	11.7	12.7	1.5	13.2	FALSE		
	11.8	13.8	1.5	13.3	OVER STD		
	11.1	13.0	1.5	12.6	OVER STD		
	11.0	11.9	1.6	12.6	FALSE		
	12.3	14.9	1.5	13.8	over std		
	11.4	12.7	1.5	12.9	FALSE		
	11.7	12.6	1.5	13.2	FALSE		
Jul-99	9.5	10.5	1.7	11.2	FALSE		
	10.1	11.1	1.6	11.7	FALSE		
	10.4	11.7	1.6	12.0	FALSE		
	10.1	11.8	1.6	11.7	OVER STD		

Month-Year	Upstream	Downstream	Allowable (28/(b#+7)) Increase	Allowable (b#+e#) Temp Inc.	Meets Std if(f#<d#,1) If False	sum # > Std	(37/81)* 100 % > Std
	10.2	11.5	1.6	11.8	FALSE		
	10.6	11.6	1.6	12.2	FALSE		
	10.6	12.2	1.6	12.2	OVER STD		
	10.3	11.2	1.6	11.9	FALSE		
	11.3	12.6	1.5	12.8	FALSE		
	10.7	12.4	1.6	12.3	over std		
	9.8	11.2	1.7	11.5	FALSE		
	10.6	12.4	1.6	12.2	OVER STD		
	11.2	13.0	1.5	12.7	OVER STD		
Jun-99	8.9	9.0	1.8	10.7	FALSE		
	8.3	9.1	1.8	10.1	FALSE		
	9.3	9.7	1.7	11.0	FALSE		
	8.7	8.9	1.8	10.5	FALSE		
	9.0	9.5	1.8	10.8	FALSE		
	9.2	10.1	1.7	10.9	FALSE		
	10.5	11.8	1.6	12.1	FALSE		
	10.4	11.3	1.6	12.0	FALSE		
	10.4	11.3	1.6	12.0	FALSE		
	10.2	10.4	1.6	11.8	FALSE		
	10.3	11.2	1.6	11.9	FALSE		
	10.4	11.6	1.6	12.0	FALSE		
	9.7	10.6	1.7	11.4	FALSE		
	10.5	11.7	1.6	12.1	FALSE		
May-99	7.8	8.1	1.9	9.7	FALSE		
	7.6	8.1	1.9	9.5	FALSE		
	7.3	7.6	2.0	9.3	FALSE		
	6.8	6.8	2.0	8.8	FALSE		
	7.9	8.2	1.9	9.8	FALSE		
	7.9	8.2	1.9	9.8	FALSE		
	8.6	8.8	1.8	10.4	FALSE		
	7.9	8.3	1.9	9.8	FALSE		
	8.0	8.2	1.9	9.9	FALSE		
	9.4	10.4	1.7	11.1	FALSE		
	8.1	8.8	1.9	10.0	FALSE		
	9.1	9.2	1.7	10.8	FALSE		
Sep-98	12.1	14.6	1.5	13.6	OVER STD		
	11.4	14.6	1.5	12.9	OVER STD		
Aug-98	12.0	14.3	1.5	13.5	OVER STD		
	12.4	14.9	1.4	13.8	OVER STD		
	12.3	14.0	1.5	13.8	OVER STD		
	12.1	14.2	1.5	13.6	OVER STD		
	12.2	15.0	1.5	13.7	OVER STD		
	12.9	16.1	1.4	14.3	OVER STD		
	12.1	15.4	1.5	13.6	OVER STD		
	11.2	13.4	1.5	12.7	OVER STD		
	12.3	14.3	1.5	13.8	OVER STD		

Month-Year	Upstream	Downstream	Allowable (28/(b#+7)) Increase	Allowable (b#+e#) Temp Inc.	Meets Std if(f#<d#,1) If False	sum # > Std	(37/81)* 100 % > Std
	11.7	14.1	1.5	13.2	OVER STD		
Jul-98	12.1	14.3	1.5	13.6	OVER STD		
	12.1	14.2	1.5	13.6	OVER STD		
	12.3	14.6	1.5	13.8	OVER STD		
	12.9	14.8	1.4	14.3	OVER STD		
				sum over=	37		

DISSOLVED OXYGEN SAG ANALYSIS

INPUT

1. EFFLUENT CHARACTERISTICS

Discharge (cfs):	0.06
CBOD5 (mg/L):	20
NBOD (mg/L):	0.05
Dissolved Oxygen (mg/L):	8
Temperature (deg C):	18

2. RECEIVING WATER CHARACTERISTICS

Upstream Discharge (cfs):	1
Upstream CBOD5 (mg/L):	0.0
Upstream NBOD (mg/L):	0
Upstream Dissolved Oxygen (mg/L):	8
Upstream Temperature (deg C):	18
Elevation (ft NGVD):	300
Downstream Average Channel Slope (ft/ft):	0.0088
Downstream Average Channel Depth (ft):	1
Downstream Average Channel Velocity (fps):	0.75

3. REAERATION RATE (Base e) AT 20 deg C (day^-1): 45.58

Reference	Applic. Vel (fps)	Applic. Dep (ft)	Suggested Values
Churchill	1.5 - 6	2 - 50	8.78
O'Connor and Dobbins	.1 - 1.5	2 - 50	11.22
Owens	.1 - 6	1 - 2	17.81
Tsivoglou-Wallace	.1 - 6	.1 - 2	45.58

4. BOD DECAY RATE (Base e) AT 20 deg C (day^-1): 3.33

Reference	Suggested Value
Wright and McDonnell, 1979	3.33

OUTPUT	
1. INITIAL MIXED RIVER CONDITION	
CBOD5 (mg/L):	1.1
NBOD (mg/L):	0.0
Dissolved Oxygen (mg/L):	8.0
Temperature (deg C):	18.0
2. TEMPERATURE ADJUSTED RATE CONSTANTS (Base e)	
Reaeration (day^-1):	43.47
BOD Decay (day^-1):	3.04
3. CALCULATED INITIAL ULTIMATE CBODU AND TOTAL BODU	
Initial Mixed CBODU (mg/L):	1.7
Initial Mixed Total BODU (CBODU + NBOD, mg/L):	1.7
4. INITIAL DISSOLVED OXYGEN DEFICIT	
Saturation Dissolved Oxygen (mg/L):	9.366
Initial Deficit (mg/L):	1.37
5. TRAVEL TIME TO CRITICAL DO CONCENTRATION (days):	0.00
6. DISTANCE TO CRITICAL DO CONCENTRATION (miles):	0.00
7. CRITICAL DO DEFICIT (mg/L):	1.37
8. CRITICAL DO CONCENTRATION (mg/L):	8.00

pH and Temperature analysis

Calculation of pH of a mixture of two flows. Based on the procedure in EPA's DESCON program (EPA, 1988. Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling. U.S. EPA Office of Water, Washington D.C.)
Based on Lotus File PHMIX2.WK1 Revised 19 Oct-93

INPUT	
1. DILUTION FACTOR AT MIXING ZONE BOUNDARY	4.200
2. UPSTREAM/BACKGROUND CHARACTERISTICS	
Temperature (deg C):	12.40
pH:	7.90
Alkalinity (mg CaCO3/L):	50.00
3. EFFLUENT CHARACTERISTICS	
Temperature (deg C):	18.00
pH:	7.55
Alkalinity (mg CaCO3/L):	150.00

OUTPUT

1. IONIZATION CONSTANTS	
Upstream/Background pKa:	6.44
Effluent pKa:	6.40
2. IONIZATION FRACTIONS	
Upstream/Background Ionization Fraction:	0.97
Effluent Ionization Fraction:	0.93
3. TOTAL INORGANIC CARBON	
Upstream/Background Total Inorganic Carbon (mg CaCO3/L):	51.74
Effluent Total Inorganic Carbon (mg CaCO3/L):	160.53
4. CONDITIONS AT MIXING ZONE BOUNDARY	
Temperature (deg C):	13.73
Alkalinity (mg CaCO3/L):	73.81
Total Inorganic Carbon (mg CaCO3/L):	77.64
pKa:	6.43
pH at Mixing Zone Boundary:	7.71

Ammonia Reasonable Potential

Freshwater un-ionized ammonia criteria based on EPA Gold Book (EPA 440/5-86-001) as revised by Heber and Ballentine (1992).

Based on Lotus File NH3FRES2.WK1 Revised 12-Dec-94

INPUT

1. Temperature (deg C; 0<T<30): (At edge of the mixing zone)	13.7
2. pH (6.5<pH<9.0):	7.90
3. Total Ammonia (ug N/L):	317.0
4. Acute TCAP (Salmonids present- 20; absent- 25):	20
5. Chronic TCAP (Salmonids present- 15; absent- 20):	15

OUTPUT

1. Intermediate Calculations:

Acute FT:	1.5453
Chronic FT:	1.5453
FPH:	1.0530
RATIO:	13.5000
pKa:	9.6054
Fraction Of Total Ammonia Present As Un-ionized:	1.9325%

2. Sample Un-ionized Ammonia Concentration (ug/L as NH3-N): 6.1

3. Un-ionized Ammonia Criteria:

Acute (1-hour) Un-ionized Ammonia Criterion (ug/L as NH3-N):	131.3
Chronic (4-day) Un-ionized Ammonia Criterion (ug/L as NH3-N):	29.9

4. Total Ammonia Criteria:

Acute Total Ammonia Criterion (ug/L as NH3-N):	6,797
Chronic Total Ammonia Criterion (ug/L as NH3-N):	1,549

Several of the Excel® spreadsheet tools used to evaluate a discharger's ability to meet Washington State water quality standards can be found on the Department's homepage at http.www:wa.gov.ecology.

APPENDIX D--RESPONSE TO COMMENTS

The Department of Corrections Cedar Creek plant operator, Ed Burns, provided comments on the original draft which were factual in nature and did not effect the proposed limits or outcome of the permit. These changes were incorporated into the draft permit and fact sheet.

The following comments were from the Puget Soundkeeper Alliance located at 1415 West Dravus, Seattle, Washington 98119. Ecology's responses to the comments are marked in italics below each comment.

The Cedar Creek Corrections Center discharges into a Class A water body (Mill Creek). Mill Creek runs into the Chehalis River, which according to the Fact Sheet, is on the 303(d) impaired waterways listing for fecal coliform, nutrients and dissolved oxygen.

THE EFFLUENT LIMIT FOR TOTAL AMMONIA SHOULD NOT HAVE BEEN REMOVED. – S1

In the previous Fact Sheet, there was a lengthy discussion on the ammonia limits and the receiving water quality of the Mill Creek. It was stated that the receiving water had a concentration of 1.56 mg/l on ammonia (Fact Sheet, Basis for Effluent Limitations, B (table)) and that it is a sensitive receiving water. Has there been a change to this status? The limit should remain, and more monitoring should be mandatory.

Response: An analysis of the reasonable potential for ammonia to violate water quality standards does not show that ammonia will violate water quality standards. Plant records do not show that there is a potential for this plant to violate water quality standards. However, the ammonia limit will be a good check on the plant. As loading increases over time, the ammonia limit is a good indicator of plant performance. Ecology will continue to limit the ammonia and will amend the permit to include the ammonia.

THERE SHOULD BE A MORE STRINGENT LIMITATION ON TEMPERATURE FOR THE OUTFALL GOING INTO
Mill Creek. – S1

It is stated in the Antidegration policy that, ". . .when the natural conditions of a receiving water are of higher quality than the criteria assigned, the natural conditions shall constitute the water quality criteria". For the case of Mill Creek, the temperature has been reported (in the Fact Sheet from 1997) as 12.4 C. This means that there should be a separate limit on that outfall specifically concerning temperature since the receiving water is a Class A water body. If there is research indicating the temperature of Mill Creek has risen to 18 C then that should be included in the fact sheet, justifying the effluent limitation in the Draft Permit. Giving the permittee until the next permit to come into compliance with the temperature standards is unacceptable. There should be exceptions made to general standards and a focus should be made on preserving high quality water bodies.

Response: It is not possible to determine what the natural condition for this system is. However, Ecology feels the temperature analysis in the fact sheet does a good job to determine what the background condition is. The permit and fact sheet does set a temperature limit and does layout a compliance schedule to achieve that limit. A compliance schedule is allowed under State and Federal law where Ecology feels that immediate compliance is not possible. In the case of this facility AKART is already applied to the conventional parameters. The plant is a tertiary treatment system.

THE EFFLUENT LIMITATIONS SHOULD HAVE BEEN MADE MORE STRINGENT, NOT EXTENDED FROM THE
last permit. – S1

With the Chehalis river being on the 303(d) list for fecal coliform, nutrients and dissolved oxygen, and since the receiving water is classified as a Class A water body, there should be steps taken to decrease the amount of pollutants going into the Mill Creek. The effluent limits for this permittee were not changed, but extended (and the ammonia limit removed). The effluent limitations should be steadily getting more stringent, resulting in less pollution to our public waterways.

Response: *These parameters were examined and discussed in the fact sheet. Because the plant is receiving tertiary treatment, and uses UV disinfection, nutrients, dissolved oxygen, and fecal coliform, are much lower than typical of plants required to meet technology based limits. The plant does meet the water quality limits for these parameters. No change is proposed for this section of the permit.*

IS THERE A MIXING ZONE FOR THIS PERMIT?

The reports in Appendix C discussing output and input discuss the levels of pH, Alkalinity, Temperature, and total inorganic carbon at the mixing zone boundaries. In the permit itself, there is no discussion of mixing zones or the lack there of. This point should be made more clear in the Draft permit.

Response: There is no mixing zone allowed Some mixing does still occur, however, the limits on pollutants have been set for end of pipe. The fact that a dilution zone is not allowed is discussed at the beginning of the section "Consideration of Surface Water Quality-Based Limits for Numeric Criteria." Instead of calling it a dilution zone, the wording will be changed to mixing zone.

The following comment was received from Ed Burns, operator of the Cedar Creek Correction Center Treatment Plant:

I wanted to comment on the new fact sheet and draft permit again. On the bottom of page 2 of the fact sheet it states "the plant is classified as Tertiary Municipal, which requires a Group III certified operator". The draft permit however on page 10 under section S5 paragraph A. Certified Operator, needs to be changed to a Class III.

Response: This is correct. The permit will be changed to reflect the change to class III.